

LI.—*Newly-discovered Stridulating-Organs in the Genus Scytodes.* By F. O. PICKARD-CAMBRIDGE.

THE presence of organs, in various parts of the body of certain spiders, whose function seems to be primarily, at all events, the production of sound, has long been a matter of common knowledge to most arachnologists.

These organs, usually consisting of a hard chitinous plate, whose surface is set more or less closely with transverse ridges or rough corrugations, on the one hand, in opposition to one or more cusps, spines, or tubercles developed on some other adjacent portion of the structure, will always prove of great interest to the scientific student as well as to the general nature-loving public; the more so, perhaps, because their exact significance in the natural economy of their owners, and their ultimate value as factors in a natural classification of members of the order, have not yet been ascertained with any show of certainty.

These "organs of stridulation" are found developed on two widely different portions of the body—the abdomen on the one hand, and the mandibles on the other. Nevertheless in both cases they appear to be modifications of essentially the same plan; for whether they appear on the mandibles working in correlation with the adjacent femoral joint of the palpus or on the abdomen with the more or less produced basal margin of the cephalothorax, these organs consist of a series of grooves or ridges in cooperation with spines or tubercles, which, when in motion, pass over the former just as one might draw a stick rapidly over a series of wooden palings, with a somewhat similar effect, though on a very much smaller scale.

Of the organs which are found on the mandibles and palpi none are more remarkable than those discovered by the late Prof. Wood-Mason, and recently described and figured by Mr. R. I. Pocock, of the Natural-History Museum, South Kensington, in several species of various genera of the Theraphosidæ. In these the hairs become modified and highly specialized, forming very beautiful organs of sound. They consist of a series of longer and shorter hard, shining, chitinous keys, fastened at one end, free at the other, and raised above the surface of the exoskeleton of the mandibles or palpus, as the case may be; for these keys are developed sometimes on the coxal joint of the palpus, sometimes on the outside of the mandibles, and in the Theraphosidæ in both sexes alike.

In *Musagetes*, for instance, the spines which play across the

keys are set in the lower margin of the basal joint of the mandible, while the keys themselves are on the inner face of the coxal joint of the palpus. In *Phormingochilus*, on the other hand, this position is reversed, the keys or rods being on the mandible, while the opposing spines are on the palpus. These beautiful structures, as represented in the two genera mentioned above, have been described and figured in a most interesting paper published in 'Natural Science,' vol. vi. p. 35, Jan. 1895, entitled "Musical Boxes in Spiders."

Amongst other spiders which exhibit an organ of somewhat similar character in the male sex and in a rudimentary form in the female sex, in connexion with the mandibles and palpi, we may mention the genus *Leptyphantes* of the family Theridiidæ and some other genera commonly included under the name *Tmeticus*. The organ in this case consists of a series of transverse grooves, opposed by a small spine set in the apex of a minute conical prominence, situated near the base on the inner side of the femoral joint of the palpus, which works upon and across the grooves.

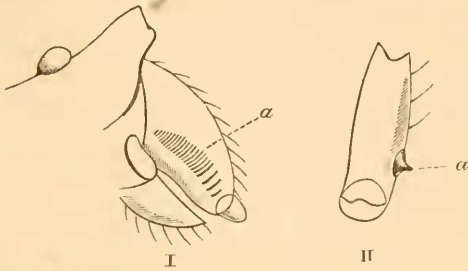
These organs were described and figured long ago by Mr. F. Maule-Campbell, of Hoddesdon.

The sound which these minute organs would emit, if indeed any, would of course be far too insignificant to be heard by the human ear.

More interesting on the whole, perhaps, than these is a somewhat similar organ discovered on the mandible of the genus *Thomisoides*, consisting, in this case also, of an extended series of very highly specialized transverse ridges upon the outer surface, while on the opposing surface of the femur of the palpus appear from four to six (the number varying in different species) small separate tubercles. This structure has been described and figured by M. Simon in 'Histoire Naturelle des Araignées,' pp. 268 and 269, and also by Mr. Pocock in the paper mentioned above, and is found in both sexes of *Thomisoides*.

During the past year I have discovered in all the specimens of the genus *Scytodes*, and in both sexes which have come to hand from various parts of the world, a structure very similar to those in *Leptyphantes*, consisting of a series of short transverse ridges, more pronounced and more widely separate towards the apex, becoming finer and more closely adjacent towards the base (fig. I., a). On the femoral joint of the palpus near the inner basal angle there is a stout conical prominence, its apex terminating in a short blunt spine (fig. II., a). This would, when the palpi were moved to and

fro, pass over the ridges on the mandible, and perhaps produce a strident sound of greater or less intensity (see figures I. and II.).



Of several other genera, *Loxosceles* and *Dictis*, for instance, which M. Simon regards as closely allied to *Scytodes* and *Thomisoides*, it is noteworthy that they show no signs of either ridges on the mandibles or spines on the palpus. At any rate, the species which I have been able to examine—*Loxosceles rufescens*, L. Duf., and *Dictis gilva*, Thor.—do not.

M. Simon, in 'Histoire Naturelle des Araignées,' regards the generic term *Dictis* as a synonym of *Scytodes*. One would, however, be inclined to think that the absence of this organ might be a sufficient reason for keeping the genera *Scytodes* and *Dictis* quite distinct, as originally contemplated by Dr. Thorell.

Of those other organs to which I have briefly referred above, consisting of a deep fovea in the base of the abdomen, just above the pedicle, working in correlation with the roughened or developed and prominent end of the cephalothorax, I may refer to those visible in certain genera of the family Theridiidæ, as, for instance, in *Steatoda*, *Asagena*, *Pedanostethus*, &c.

But by far the most remarkable and the most highly specialized of these organs yet observed is that recently discovered by Mr. Pocock in the male of *Cambridgea antipodiana* (White), and described, with figures, in the Ann. & Mag. Nat. Hist. ser. 6, vol. xvi., Sept. 1895, in a paper entitled "On a new Sound-producing Organ in a Spider."

In this case the upper surface of the pedicle is produced in the form of a sharp, curved, triangular blade, which, when the abdomen is moved, works in and across a deeply corrugated fovea in the base of the abdomen.